

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: A. Stoyanov et al. Attorney Docket No.: 25384  
Application No.: 10/815,206 Art Unit: 1731 / Confirmation No: 9520  
Filed: March 31, 2004 Examiner: D.R. Cordray  
Title: BLEACHED CROSSLINKED CELLULOSIC FIBERS WITH HIGH COLOR  
AND BRIGHTNESS

DECLARATION OF KATHY A. WELCH PURSUANT TO 37 C.F.R. § 1.131

Seattle, Washington 98101

April 13, 2006

TO THE COMMISSIONER FOR PATENTS:

I, Kathy A. Welch, declare as follows:

1. I am employed by Weyerhaeuser Company as a Scientist.
2. I have read and am familiar with U.S. Patent Application No. 10/815,206, (the '206 application).
3. I have read and am familiar with U.S. Patent Application Publication No. US 2003/0208859 A1 ("the Neogi reference") that published November 13, 2003.
4. Prior to the publication date of the Neogi reference, I conducted pilot line trials in which cellulose fibers were crosslinked with a crosslinking agent in the presence of a polyol and then bleached. These bleached crosslinked fibers were prepared under the direction of Angel Stoyanov, M.Sc., an inventor of the subject matter claimed in the '206 application. The following describes two pilot line runs Trial T-75 and Trial 82 performed on September 8, 2003 and October 28, 2003 respectively, that provided cellulosic fibers crosslinked with citric acid in the presence of sorbitol described in Table 4 of the '206 application.
  - a. In Trial 75, southern pine kraft pulp (CF416) was crosslinked with an impregnation solution including citric acid (crosslinking agent), sodium hypophosphite (SHP, crosslinking catalyst), and sorbitol as set forth on page 1 of my laboratory

notebook (**Exhibit A** attached to this declaration). The crosslinked fibers were then treated with a bleaching agent that was either hydrogen peroxide or a combination of hydrogen peroxide and sodium peroxide. The target bleaching conditions for the trial, Samples B, H, L and N in Table 4 of the '206 application are set forth on the same page of my laboratory notebook. The corresponding notebook entries are in the Run Matrix on page 1 in **EXHIBIT A** are listed under the Run ID as C, D, H and I, respectively. Unbleached control samples represented by samples A, K and M in Table 4 correspond to Run ID B, G and J, respectively, in the Run Matrix on page 1. The treated pulp was separated into individualized fibers and cured to provide citric acid crosslinked fibers.

b. For each run, nine (9) samples were taken in duplicate. Sample B in Table 4 is represented by C-1 to C-9, page 22 and 23; sample H by D1 to D-9, page 23; sample L by H , page 24; and sample N by I, page 24 and 25 (see **Exhibit B**). Unbleached control samples A, K, and M in Table 4 (which correspond to Run ID B, G and J, respectively, in the Run Matrix on page1), are represented by BB-1 to BB-9, page 22; G, page 24 and J, page 25, respectively. Each run was sampled at the baler feed and the samples were taken at approximately two minute intervals during each run.

c. Hunter *L*, *a*, and *b* values were measured. The results were tabulated as set forth on pages cited in paragraph c., above.

d. In Trial 82, southern pine kraft pulp (CF416) was crosslinked with an impregnation solution including citric acid (crosslinking agent), sodium hypophosphite (SHP, crosslinking catalyst), and sorbitol as set forth on page 1 of my laboratory notebook (**Exhibit C** attached to this declaration). The citric acid crosslinked fibers were treated with a bleaching agent that was either hydrogen peroxide or a combination of hydrogen peroxide and sodium peroxide. The target bleaching conditions for the trial,

Samples I and J in Table 4 are set forth on page 83 of my laboratory notebook. The corresponding notebook entries are under the Run ID as E and F, respectfully in the Run Matrix. Unbleached control samples previously mentioned in paragraph b., above.

e. For each run, five (5) samples were taken. Sample I is represented by E, page 92 and sample J by F, page 92. Each run was sampled at the baler feed and the samples were taken at approximately two minute intervals during each run.

f. Hunter *L*, *a*, and *b* values were measured. The results were tabulated as set forth on pages 92, **EXHIBIT D**.

5. All of the bleached crosslinked cellulose fibers described above were prepared prior to November 13, 2003. In accordance with accepted Patent Office practice, the dates in my laboratory notebook pages presented in **EXHIBITS A-D** have been redacted.

6. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under § 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Respectfully submitted,

Date: 4/13/06

Kathy A. Welch  
Kathy A. Welch

EXHIBIT A

Project No. 142-4506

Book No. 14615

APPL Trial 75 Determine CS10 Cure

Page No.

Time &amp; Temp. to Hit 5k and Hunter b Targets

## APPL Trial T-75

Project Manager: Angel Stoyakov

Project Number: 00050 W532 615 874 731 142-4506

## Objective:

- Determine the interaction of cure time and temperature leading to a cross-link product with 5k and Hunter b values of 0.15 and 5, or less for both, respectively.

## Safety:

- Normal safety precautions taken with operation of the APPL unit.
- Read MSDS for Sorbitol and handle per MSDS recommendations.

## Run Conditions:

Pulp Type: CP416  
 Pulp Sheet Linear Feed Rate: 60 fpm  
 Hammermill Nosebar Gap: 0.095 inches  
 Hammermill Rotor Tip Speed: 16,493 fpm  
 Impregnation Solutions Concentration: CS10 Control: 11.62% solids  
 Sorbitol: 11.61% solids

## Impregnation Solutions pH's

Adjust to 2.0 - 2.1 for the Control solution  
 Measure and Record for the Sorbitol solution

## Target Hammermill Feed Consistency

61%

Target Chemical on ODCF Pulp  
(all as 100% Purity)

CS10 Control: 7.6% Citric Acid; 0.683% SHP & Causic; 0.181%  
 Sorbitol: 6.0% Citric Acid; 0.75% SHP & 1.5% Sorbitol

## Impregnation Solution Rotameter Setting

See Run Matrix

## Nominal Cure Temperature

See Run Matrix

## Nominal Cure Time

See Run Matrix

## Target Product Moisture

6%

## Reconditioning Solution

See Run Matrix

## Reconditioning Rotameter Setting

60% of scale (20 psi water &amp; 28 psi air)

## Run Matrix

Run ID	Impregnation		Cure Conditions		Post-Treatment	
	Impregnation Solution	Rotameter Setting % of scale	Cure Temperature °F	Cure Time minutes	Hydrogen Peroxide #/ADM	Causic #/ADM
A	CS10 Control	44.7	380	5	0.0	0.0
B	Sorbitol	44.5	380	5	0.0	0.0
C	Sorbitol	44.5	380	5	0.8	2.5
D	Sorbitol	44.5	380	7	0.8	2.5
E	Sorbitol	44.5	380	7	0.0	0.0
F	CS10 Control	44.7	380	5	0.0	0.0
G	Sorbitol	44.5	380	5	0.0	0.0
H	Sorbitol	44.5	380	5	0.8	2.5
I	Sorbitol	44.5	380	7	0.8	2.5
J	Sorbitol	44.5	380	7	0.0	0.0

## Samples:

Pulp Feed Rolls: 1 sample per roll

Hammermill Feed: 3 samples per run condition

Baler Feed: 9 samples at 2 minute intervals during steady state operation for each Run Condition

Note: Chloroacetic acid samples will only be taken for Samples 1, 4 and 9 for each Run Condition

Planning Summary T-075.doc

1 OF 2

Witnessed &amp; Understood by me:

Date

Initiated by

Date

Recorded by

V. Welch

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Project No. 142-4506

EXHIBIT D

Book No. 14615

TITLE ARRL Trial 75 (cont.)

Page No. 242

Change the Sample ID font from gray to black after entering new data.

## Color Day 0

Sampling		Variable	Sampling		Sampling		Test		Days	Brightness					
Title	Point	Condition	Sequence	Pad	Replicate	Date	Date	Aged	Brightness	L	a	b	L	a	b
75	BF	A-1	1	1	a	09/08/03	09/08/03	0	73.02	93.08	-1.39	10.77	94.59	-1.33	11.14
75	BF	A-1	1	1	b	09/08/03	09/08/03	0	72.40	92.93	-1.58	11.12	94.47	-1.46	11.53
								average	72.71	93.01	-1.44	10.95	94.53	-1.45	11.34
75	BF	A-2	2	1	a	09/08/03	09/08/03	0	76.10	93.78	-1.92	9.34	95.75	-1.06	9.56
75	BF	A-2	2	1	b	09/08/03	09/08/03	0	75.51	93.75	-1.39	9.79	95.12	-1.35	10.04
								average	75.81	93.77	-1.29	9.57	95.44	-1.22	9.80
75	BF	A-3	3	1	a	09/08/03	09/08/03	0	73.19	93.04	-1.39	10.64	94.55	-1.34	11.00
75	BF	A-3	3	1	b	09/08/03	09/08/03	0	72.81	92.97	-1.51	10.80	94.40	-1.47	11.18
								average	73.00	93.01	-1.44	10.72	94.52	-1.41	11.09
75	BF	A-4	4	1	a	09/08/03	09/08/03	0	74.02	93.29	-1.47	10.26	94.75	-1.38	10.60
75	BF	A-4	4	1	b	09/08/03	09/08/03	0	74.12	93.28	-1.22	10.12	94.72	-1.24	10.48
								average	74.07	93.29	-1.36	10.23	94.74	-1.31	10.54
75	BF	A-5	5	1	a	09/08/03	09/08/03	0	72.39	92.91	-1.32	10.94	94.52	-1.28	11.35
75	BF	A-5	5	1	b	09/08/03	09/08/03	0	72.81	92.87	-1.33	10.89	94.42	-1.30	11.24
								average	72.50	92.84	-1.33	10.90	94.46	-1.29	11.30
75	BF	A-6	6	1	a	09/08/03	09/08/03	0	74.36	93.44	-1.38	10.20	94.63	-1.35	10.91
75	BF	A-6	6	1	b	09/08/03	09/08/03	0	74.95	93.62	-1.30	10.01	95.01	-1.33	10.28
								average	74.68	93.53	-1.36	10.11	94.84	-1.34	10.40
75	BF	A-7	7	1	a	09/08/03	09/08/03	0	72.60	93.08	-1.58	11.12	94.58	-1.55	11.53
75	BF	A-7	7	1	b	09/08/03	09/08/03	0	75.37	93.72	-1.49	9.89	95.03	-1.37	10.14
								average	73.99	93.40	-1.58	10.58	94.84	-1.48	10.84
75	BF	A-8	8	1	a	09/08/03	09/08/03	0	74.32	93.41	-1.49	10.22	94.64	-1.37	10.53
75	BF	A-8	8	1	b	09/08/03	09/08/03	0	74.98	93.58	-1.39	9.97	94.98	-1.35	10.25
								average	74.64	93.49	-1.48	10.10	94.89	-1.38	10.39
75	BF	A-9	9	1	a	09/08/03	09/08/03	0	73.73	93.43	-1.48	10.71	94.65	-1.45	11.08
75	BF	A-9	9	1	b	09/08/03	09/08/03	0	73.74	93.43	-1.48	10.69	94.66	-1.44	11.04
								average	73.74	93.43	-1.48	10.70	94.66	-1.45	11.05
75	BF	BB-1	1	1	a	09/08/03	09/08/03	0	81.80	94.93	-1.48	6.60	96.05	-1.42	6.82
75	BF	BB-1	1	1	b	09/08/03	09/08/03	0	81.91	94.93	-1.52	6.50	96.04	-1.47	6.52
								average	81.86	94.93	-1.48	6.55	96.05	-1.48	6.57
75	BF	BB-2	2	1	a	09/08/03	09/08/03	0	82.04	94.98	-1.49	6.40	96.02	-1.44	6.42
75	BF	BB-2	2	1	b	09/08/03	09/08/03	0	82.70	95.13	-1.33	6.15	96.20	-1.31	6.14
								average	82.37	95.06	-1.42	6.28	96.14	-1.38	6.28
75	BF	BB-3	3	1	a	09/08/03	09/08/03	0	82.20	95.08	-1.40	6.43	96.16	-1.35	6.44
75	BF	BB-3	3	1	b	09/08/03	09/08/03	0	82.39	95.09	-1.42	6.35	96.17	-1.37	6.37
								average	82.28	95.09	-1.41	6.40	96.17	-1.36	6.41
75	BF	BB-4	4	1	a	09/08/03	09/08/03	0	83.00	95.28	-1.23	6.05	96.31	-1.19	6.04
75	BF	BB-4	4	1	b	09/08/03	09/08/03	0	83.44	95.45	-1.22	6.07	96.45	-1.17	6.00
								average	83.22	95.36	-1.23	6.05	96.38	-1.18	6.02
75	BF	BB-5	5	1	a	09/08/03	09/08/03	0	83.68	95.39	-1.22	5.73	96.41	-1.18	5.71
75	BF	BB-5	5	1	b	09/08/03	09/08/03	0	83.42	95.29	-1.24	5.79	96.33	-1.20	5.77
								average	83.56	95.34	-1.23	5.78	96.37	-1.19	5.74
75	BF	BB-6	6	1	a	09/08/03	09/08/03	0	83.77	95.42	-1.13	5.70	96.43	-1.09	5.68
75	BF	BB-6	6	1	b	09/08/03	09/08/03	0	84.10	95.61	-1.18	5.71	96.56	-1.14	5.68
								average	83.84	95.52	-1.16	5.71	96.51	-1.12	5.69
75	BF	BB-7	7	1	a	09/08/03	09/08/03	0	83.41	95.31	-1.22	5.87	96.34	-1.22	5.79
75	BF	BB-7	7	1	b	09/08/03	09/08/03	0	83.69	95.40	-1.24	5.73	96.42	-1.19	5.71
								average	83.55	95.36	-1.23	5.77	96.38	-1.21	5.75
75	BF	BB-8	8	1	a	09/08/03	09/08/03	0	83.63	95.37	-1.15	5.72	96.39	-1.11	5.70
75	BF	BB-8	8	1	b	09/08/03	09/08/03	0	83.44	95.30	-1.22	5.79	96.34	-1.18	5.78
								average	83.54	95.34	-1.18	5.78	96.37	-1.15	5.74
75	BF	BB-9	9	1	a	09/08/03	09/08/03	0	83.29	95.23	-1.14	5.60	96.28	-1.10	5.78
75	BF	BB-9	9	1	b	09/08/03	09/08/03	0	83.68	95.41	-1.15	5.76	96.43	-1.11	5.74
								average	83.48	95.32	-1.16	5.78	96.36	-1.11	5.77
75	BF	C-1	1	1	a	09/08/03	09/08/03	0	83.25	95.08	-1.32	5.94	96.15	-1.28	5.62
75	BF	C-1	1	1	b	09/08/03	09/08/03	0	83.80	95.25	-1.22	5.46	96.30	-1.17	5.48
								average	83.53	95.18	-1.27	5.69	96.23	-1.23	5.64
75	BF	C-2	2	1	a	09/08/03	09/08/03	0	83.67	95.24	-1.23	5.57	96.29	-1.21	5.39
75	BF	C-2	2	1	b	09/08/03	09/08/03	0	84.02	95.22	-1.18	5.59	96.32	-1.14	5.33
								average	83.85	95.28	-1.21	5.58	96.31	-1.16	5.38
75	BF	C-3	3	1	a	09/08/03	09/08/03	0	82.90	95.19	-1.34	6.07	96.25	-1.29	6.01
75	BF	C-3	3	1	b	09/08/03	09/08/03	0	83.63	95.19	-1.28	5.58	96.25	-1.21	5.50
								average	83.28	95.18	-1.30	5.77	96.24	-1.26	5.78
75	BF	C-4	4	1	a	09/08/03	09/08/03	0	85.98	95.24	-1.24	5.75	96.28	-1.20	5.73
75	BF	C-4	4	1	b	09/08/03	09/08/03	0	82.84	95.09	-1.30	5.58	96.15	-1.34	5.98
								average	84.15	95.18	-1.32	5.67	96.22	-1.27	5.86
75	BF	C-5	5	1	a	09/08/03	09/08/03	0	83.62	95.38	-1.21	5.67	96.40	-1.20	5.69
75	BF	C-5	5	1	b	09/08/03	09/08/03	0	83.42	95.11	-1.31	5.74	96.28	-1.28	5.72
								average	83.52	95.34	-1.23	5.73	96.35	-1.25	5.68
75	BF	C-6	6	1	a	09/08/03	09/08/03	0	83.21	95.27	-1.22	5.91	96.31	-1.17	5.50
75	BF	C-6	6	1	b	09/08/03	09/08/03	0	83.57	95.48	-1.10	5.99	96.48	-1.12	5.58
								average	83.39	95.37	-1.15	5.95	96.39	-1.16	5.54

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TITLE

APP Trial 75 (cont.)

Project No. 142-4506

Book No. 1460

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From Page No. 22

Trail	Point	Condition	Sequence	Pad	Replicate	Sampling Date	Test Date	Days Aged	Brightness	L	a	b	L*	a*	b*
75	BF	C-7	7	1	a	09/08/03	09/08/03	0	83.38	85.49	-1.23	8.13	86.48	-1.18	8.13
75	BF	C-7	7	1	b	09/08/03	09/08/03	0	83.30	85.46	-1.18	5.97	86.46	-1.14	5.95
							average		83.44	85.48	-1.21	8.06	86.47	-1.16	8.04
75	BF	C-8	8	1	a	09/08/03	09/08/03	0	84.78	85.68	-1.06	5.23	86.61	-1.01	5.19
75	BF	C-8	8	1	b	09/08/03	09/08/03	0	84.88	85.72	-1.03	5.27	86.70	-0.99	5.33
							average		84.83	85.70	-1.04	5.24	86.66	-1.00	5.26
75	BF	C-9	9	1	a	09/08/03	09/08/03	0	84.50	85.71	-1.10	5.38	86.68	-1.06	5.55
75	BF	C-9	9	1	b	09/08/03	09/08/03	0	83.76	85.53	-1.17	5.86	86.52	-1.13	5.86
							average		84.13	85.62	-1.14	5.77	86.69	-1.10	5.71
75	BF	D-1	1	1	a	09/08/03	09/08/03	0	83.71	85.49	-1.10	5.70	86.43	-1.06	5.86
75	BF	D-1	1	1	b	09/08/03	09/08/03	0	82.60	85.34	-1.37	6.48	86.36	-1.32	6.48
							average		83.16	85.42	-1.24	6.09	86.40	-1.19	6.06
75	BF	D-2	2	1	a	09/08/03	09/08/03	0	82.87	85.18	-1.24	5.97	86.24	-1.19	5.96
75	BF	D-2	2	1	b	09/08/03	09/08/03	0	82.88	85.23	-1.29	6.12	86.28	-1.24	6.11
							average		82.83	85.21	-1.27	6.06	86.26	-1.22	6.04
75	BF	D-3	3	1	a	09/08/03	09/08/03	0	82.85	85.23	-1.28	6.05	86.26	-1.24	6.04
75	BF	D-3	3	1	b	09/08/03	09/08/03	0	83.25	85.33	-1.24	6.00	86.36	-1.20	5.99
							average		83.10	85.28	-1.27	6.03	86.32	-1.22	6.02
75	BF	D-4	4	1	a	09/08/03	09/08/03	0	81.10	84.85	-1.50	6.56	85.68	-1.52	6.58
75	BF	D-4	4	1	b	09/08/03	09/08/03	0	80.13	84.58	-1.65	7.27	85.76	-1.60	7.33
							average		80.72	84.72	-1.58	7.11	85.88	-1.56	7.18
75	BF	D-5	5	1	a	09/08/03	09/08/03	0	82.79	85.45	-1.36	6.58	86.45	-1.30	6.57
75	BF	D-5	5	1	b	09/08/03	09/08/03	0	82.00	85.33	-1.33	6.30	86.36	-1.28	6.30
							average		82.77	85.39	-1.34	6.43	86.41	-1.28	6.44
75	BF	D-6	6	1	a	09/08/03	09/08/03	0	82.89	85.41	-1.35	6.53	86.43	-1.30	6.53
75	BF	D-6	6	1	b	09/08/03	09/08/03	0	82.77	85.33	-1.33	6.30	86.36	-1.30	6.40
							average		82.70	85.37	-1.34	6.44	86.40	-1.30	6.47
75	BF	D-7	7	1	a	09/08/03	09/08/03	0	82.83	85.04	-1.33	6.03	86.13	-1.28	6.03
75	BF	D-7	7	1	b	09/08/03	09/08/03	0	82.11	85.04	-1.42	6.40	86.13	-1.42	6.41
							average		82.42	85.04	-1.38	6.22	86.13	-1.36	6.22
75	BF	D-8	8	1	a	09/08/03	09/08/03	0	82.31	85.25	-1.43	6.54	86.28	-1.38	6.53
75	BF	D-8	8	1	b	09/08/03	09/08/03	0	82.06	85.21	-1.49	6.73	86.27	-1.44	6.75
							average		82.20	85.23	-1.46	6.64	86.28	-1.40	6.66
75	BF	D-9	9	1	a	09/08/03	09/08/03	0	81.98	85.15	-1.46	6.87	86.22	-1.40	6.88
75	BF	D-9	9	1	b	09/08/03	09/08/03	0	81.80	85.05	-1.45	6.84	86.14	-1.43	6.86
							average		81.83	85.10	-1.47	6.76	86.18	-1.42	6.78
75	BF	E-1	1	1	a	09/08/03	09/08/03	0	81.00	85.18	-1.45	7.36	86.18	-1.43	7.40
75	BF	E-1	1	1	b	09/08/03	09/08/03	0	82.06	85.40	-1.38	7.00	86.42	-1.34	7.02
							average		81.53	85.29	-1.44	7.19	86.30	-1.39	7.31
75	BF	E-2	2	1	a	09/08/03	09/08/03	0	82.14	85.40	-1.44	6.93	86.42	-1.39	6.96
75	BF	E-2	2	1	b	09/08/03	09/08/03	0	81.42	85.11	-1.50	7.00	86.19	-1.45	7.11
							average		81.78	85.26	-1.47	6.91	86.31	-1.43	7.05
75	BF	E-3	3	1	a	09/08/03	09/08/03	0	81.90	85.21	-1.43	6.83	86.27	-1.38	6.86
75	BF	E-3	3	1	b	09/08/03	09/08/03	0	82.61	85.27	-1.33	6.42	86.31	-1.28	6.42
							average		82.26	85.24	-1.38	6.63	86.29	-1.33	6.64
75	BF	E-4	4	1	a	09/08/03	09/08/03	0	81.08	85.03	-1.57	7.27	86.13	-1.52	7.31
75	BF	E-4	4	1	b	09/08/03	09/08/03	0	81.25	85.09	-1.53	7.04	86.11	-1.48	7.06
							average		81.16	85.02	-1.55	7.16	86.12	-1.50	7.20
75	BF	E-5	5	1	a	09/08/03	09/08/03	0	80.51	84.51	-1.31	6.90	85.72	-1.27	6.97
75	BF	E-5	5	1	b	09/08/03	09/08/03	0	81.30	84.61	-1.52	6.82	86.03	-1.47	6.85
							average		80.90	84.71	-1.42	6.87	85.88	-1.37	6.91
75	BF	E-6	6	1	a	09/08/03	09/08/03	0	81.58	85.05	-1.53	6.88	86.14	-1.48	6.81
75	BF	E-6	6	1	b	09/08/03	09/08/03	0	81.86	85.17	-1.52	6.80	86.23	-1.47	6.81
							average		81.73	85.11	-1.53	6.86	86.18	-1.48	6.81
75	BF	E-7	7	1	a	09/08/03	09/08/03	0	82.11	84.97	-1.42	6.42	86.08	-1.37	6.44
75	BF	E-7	7	1	b	09/08/03	09/08/03	0	81.70	85.00	-1.51	6.70	86.10	-1.46	6.72
							average		81.91	84.99	-1.47	6.56	86.09	-1.43	6.68
75	BF	E-8	8	1	a	09/08/03	09/08/03	0	82.07	85.25	-1.46	6.77	86.29	-1.36	6.79
75	BF	E-8	8	1	b	09/08/03	09/08/03	0	81.85	85.18	-1.40	6.80	86.22	-1.35	6.82
							average		81.96	85.21	-1.43	6.79	86.26	-1.36	6.81
75	BF	E-9	9	1	a	09/08/03	09/08/03	0	81.00	84.08	-1.55	7.20	86.07	-1.50	7.25
75	BF	E-9	9	1	b	09/08/03	09/08/03	0	81.13	85.01	-1.56	7.16	86.11	-1.51	7.20
							average		81.07	84.56	-1.56	7.18	86.09	-1.51	7.23
75	BF	F	1	1	a	09/08/03	09/08/03	0	73.67	83.41	-1.28	10.75	84.85	-1.25	11.11
75	BF	F	1	1	b	09/08/03	09/08/03	0	73.42	83.35	-1.28	10.79	84.80	-1.22	11.16
							average		73.55	83.39	-1.28	10.77	84.83	-1.24	11.14
75	BF	F	2	1	a	09/08/03	09/08/03	0	70.53	82.55	-1.34	11.36	84.17	-1.30	12.51
75	BF	F	2	1	b	09/08/03	09/08/03	0	72.37	82.87	-1.24	11.09	84.50	-1.21	11.50
							average		71.45	82.78	-1.29	11.54	84.34	-1.26	12.81
75	BF	F	3	1	a	09/08/03	09/08/03	0	70.34	82.28	-1.34	11.80	83.85	-1.30	12.32
75	BF	F	3	1	b	09/08/03	09/08/03	0	71.11	82.42	-1.36	11.38	84.08	-1.33	11.83
							average		70.73	82.36	-1.36	11.08	84.01	-1.32	12.08
75	BF	F	4	1	a	09/08/03	09/08/03	0	71.86	82.90	-1.49	11.80	84.43	-1.45	12.07
75	BF	F	4	1	b	09/08/03	09/08/03	0	70.68	82.58	-1.45	11.93	84.20	-1.41	12.45

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Rock No. 14615 TITLE ARPL Trial 75 (cont.)

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Sampling Trial	Variable Point	Sampling Condition	Sequence	Pad	Replicate	Sampling Date	Test Date	Days Aged	Brightness	L	a	b	L*	a*	b*	
75	BF	F	5	1	a	09/09/03	09/09/03	0	average	71.17	82.75	-1.47	11.77	94.33	-1.43	12.29
75	BF	F	5	1	b	09/09/03	09/09/03	0	0	70.24	82.52	-1.30	12.19	94.14	-1.28	12.75
75	BF	F	6	1	a	09/09/03	09/09/03	0	average	69.08	82.28	-1.40	12.77	93.95	-1.36	13.42
75	BF	F	6	1	b	09/09/03	09/09/03	0	0	69.66	82.40	-1.38	12.48	94.05	-1.31	13.68
75	BF	F	7	1	a	09/09/03	09/09/03	0	average	70.65	82.45	-1.36	11.78	94.08	-1.32	12.31
75	BF	F	7	1	b	09/09/03	09/09/03	0	0	70.23	82.41	-1.40	12.05	94.05	-1.36	12.60
75	BF	F	8	1	a	09/09/03	09/09/03	0	average	70.44	82.43	-1.38	11.82	94.07	-1.34	12.48
75	BF	F	8	1	b	09/09/03	09/09/03	0	0	71.14	82.78	-1.28	11.73	94.39	-1.24	12.22
75	BF	F	9	1	a	09/09/03	09/09/03	0	average	71.28	82.85	-1.32	11.78	94.48	-1.28	12.27
75	BF	F	9	1	b	09/09/03	09/09/03	0	0	71.28	82.81	-1.30	11.75	94.37	-1.28	12.25
75	BF	F	10	1	a	09/09/03	09/09/03	0	average	68.45	81.85	-1.33	12.75	93.01	-1.30	13.42
75	BF	F	10	1	b	09/09/03	09/09/03	0	0	68.52	81.98	-1.36	12.84	93.71	-1.33	13.51
75	BF	F	11	1	a	09/09/03	09/09/03	0	average	68.48	81.93	-1.35	12.80	93.08	-1.32	13.47
75	BF	F	11	1	b	09/09/03	09/09/03	0	0	71.79	82.68	-1.34	11.42	94.47	-1.30	11.67
75	BF	F	12	1	a	09/09/03	09/09/03	0	average	69.17	82.51	-1.48	12.73	93.08	-1.44	13.37
75	BF	F	12	1	b	09/09/03	09/09/03	0	0	70.48	82.68	-1.41	12.08	94.29	-1.37	12.62
75	BF	G	1	1	a	09/09/03	09/09/03	0	average	79.56	84.83	-1.81	8.24	98.01	-1.55	8.34
75	BF	G	1	1	b	09/09/03	09/09/03	0	0	78.84	84.51	-1.82	7.93	98.03	-1.57	8.08
75	BF	G	2	1	a	09/09/03	09/09/03	0	average	78.75	84.66	-1.82	8.11	98.02	-1.58	8.28
75	BF	G	2	1	b	09/09/03	09/09/03	0	0	82.00	85.52	-1.77	8.60	98.58	-1.22	8.61
75	BF	G	3	1	a	09/09/03	09/09/03	0	average	81.41	85.25	-1.40	7.27	98.28	-1.35	7.31
75	BF	G	3	1	b	09/09/03	09/09/03	0	0	82.16	85.33	-1.34	6.94	98.48	-1.25	6.96
75	BF	G	4	1	a	09/09/03	09/09/03	0	average	81.52	85.35	-1.40	7.34	98.38	-1.25	7.38
75	BF	G	4	1	b	09/09/03	09/09/03	0	0	81.70	85.43	-1.31	7.30	98.48	-1.27	7.33
75	BF	G	5	1	a	09/09/03	09/09/03	0	average	81.61	85.40	-1.31	7.32	98.41	-1.28	7.36
75	BF	G	5	1	b	09/09/03	09/09/03	0	0	82.19	85.37	-1.28	6.83	98.38	-1.23	6.86
75	BF	G	6	1	a	09/09/03	09/09/03	0	average	81.54	85.10	-1.34	6.88	98.18	-1.30	6.91
75	BF	G	6	1	b	09/09/03	09/09/03	0	0	82.02	85.24	-1.11	6.89	98.29	-1.07	6.96
75	BF	G	7	1	a	09/09/03	09/09/03	0	average	80.82	85.28	-1.44	7.78	98.33	-1.39	7.64
75	BF	G	7	1	b	09/09/03	09/09/03	0	0	80.75	85.24	-1.48	7.72	98.28	-1.43	7.78
75	BF	G	8	1	a	09/09/03	09/09/03	0	average	80.80	85.27	-1.46	7.75	98.31	-1.41	7.81
75	BF	G	8	1	b	09/09/03	09/09/03	0	0	82.04	85.49	-1.19	7.09	98.49	-1.14	7.12
75	BF	G	9	1	a	09/09/03	09/09/03	0	average	82.63	85.57	-1.14	6.73	98.55	-1.10	6.74
75	BF	G	9	1	b	09/09/03	09/09/03	0	0	82.34	85.63	-1.17	6.91	98.62	-1.12	6.93
75	BF	G	10	1	a	09/09/03	09/09/03	0	average	81.90	85.44	-1.28	7.12	98.44	-1.23	7.15
75	BF	G	10	1	b	09/09/03	09/09/03	0	0	82.46	85.53	-1.27	6.85	98.52	-1.22	6.88
75	BF	G	11	1	a	09/09/03	09/09/03	0	average	82.18	85.49	-1.28	6.98	98.49	-1.23	7.01
75	BF	G	11	1	b	09/09/03	09/09/03	0	0	82.38	85.61	-1.25	7.04	98.58	-1.21	7.08
75	BF	G	12	1	a	09/09/03	09/09/03	0	average	82.52	85.80	-1.24	6.88	98.57	-1.18	6.83
75	BF	G	12	1	b	09/09/03	09/09/03	0	0	82.48	85.81	-1.25	6.96	98.58	-1.19	6.97
75	BF	G	13	1	a	09/09/03	09/09/03	0	average	81.55	85.43	-1.34	7.39	98.44	-1.29	7.43
75	BF	G	13	1	b	09/09/03	09/09/03	0	0	82.34	85.45	-1.25	6.84	98.45	-1.21	6.88
75	BF	H	1	1	a	09/09/03	09/09/03	0	average	81.54	86.44	-1.30	7.12	98.46	-1.26	7.18
75	BF	H	1	1	b	09/09/03	09/09/03	0	0	80.34	86.10	-1.45	7.08	98.18	-1.40	7.09
75	BF	H	2	1	a	09/09/03	09/09/03	0	average	80.35	86.18	-1.51	8.01	98.22	-1.46	8.07
75	BF	H	2	1	b	09/09/03	09/09/03	0	0	80.34	86.13	-1.49	7.64	98.28	-1.43	8.02
75	BF	H	3	1	a	09/09/03	09/09/03	0	average	81.73	85.49	-1.28	7.01	98.49	-1.24	7.35
75	BF	H	3	1	b	09/09/03	09/09/03	0	0	81.43	85.37	-1.40	7.39	98.36	-1.37	7.43
75	BF	H	4	1	a	09/09/03	09/09/03	0	average	81.69	85.43	-1.38	7.35	98.44	-1.31	7.38
75	BF	H	4	1	b	09/09/03	09/09/03	0	0	83.34	85.65	-1.19	6.68	98.63	-1.14	6.69
75	BF	H	5	1	a	09/09/03	09/09/03	0	average	82.73	85.65	-1.25	6.80	98.61	-1.20	6.81
75	BF	H	5	1	b	09/09/03	09/09/03	0	0	82.80	85.67	-1.22	6.73	98.62	-1.17	6.74
75	BF	H	6	1	a	09/09/03	09/09/03	0	average	84.12	85.57	-1.17	6.05	98.79	-1.06	6.03
75	BF	H	6	1	b	09/09/03	09/09/03	0	0	83.88	85.81	-1.13	6.11	98.74	-1.09	6.08
75	BF	H	7	1	a	09/09/03	09/09/03	0	average	84.06	85.84	-1.12	6.08	98.77	-1.08	6.06
75	BF	H	7	1	b	09/09/03	09/09/03	0	0	83.11	85.70	-1.28	6.29	98.65	-1.24	6.58
75	BF	H	8	1	a	09/09/03	09/09/03	0	average	82.43	85.46	-1.38	6.75	98.46	-1.31	6.78
75	BF	H	8	1	b	09/09/03	09/09/03	0	0	82.77	85.68	-1.32	6.69	98.58	-1.28	6.88
75	BF	H	9	1	a	09/09/03	09/09/03	0	average	82.94	85.70	-1.32	6.74	98.65	-1.27	6.74
75	BF	H	9	1	b	09/09/03	09/09/03	0	0	82.68	85.64	-1.34	6.82	98.60	-1.28	6.85
75	BF	H	10	1	a	09/09/03	09/09/03	0	average	82.62	85.67	-1.33	6.78	98.63	-1.28	6.79
75	BF	H	10	1	b	09/09/03	09/09/03	0	0	83.97	85.70	-1.18	5.84	98.65	-1.15	5.82
75	BF	H	11	1	a	09/09/03	09/09/03	0	average	83.29	85.65	-1.28	6.40	98.61	-1.25	6.39
75	BF	H	11	1	b	09/09/03	09/09/03	0	0	83.63	85.63	-1.24	6.17	98.63	-1.28	6.18
75	BF	H	12	1	a	09/09/03	09/09/03	0	average	82.10	85.53	-1.29	7.12	98.52	-1.24	7.15
75	BF	H	12	1	b	09/09/03	09/09/03	0	0	81.88	85.55	-1.30	7.27	98.53	-1.30	7.30
75	BF	H	13	1	a	09/09/03	09/09/03	0	average	82.63	85.54	-1.32	7.20	98.63	-1.27	7.23
75	BF	H	13	1	b	09/09/03	09/09/03	0	0	83.08	85.62	-1.25	6.62	98.68	-1.23	6.52
75	BF	H	14	1	a	09/09/03	09/09/03	0	average	82.91	85.60	-1.34	6.61	98.57	-1.29	6.81
75	BF	H	14	1	b	09/09/03	09/09/03	0	0	83.00	85.61	-1.31	6.57	98.58	-1.28	6.87
75	BF	I	1	1	a	09/09/03	09/09/03	0	average	78.34	84.88	-1.58	8.32	98.00	-1.51	8.42
75	BF	I	1	1	b	09/09/03	09/09/03	0	0	79.67	84.89	-1.50	8.24	98.08	-1.45	8.34
75	BF	I	2	1	a	09/09/03	09/09/03	0	average	79.61	84.94	-1.53	8.28	98.08	-1.48	8.38
75	BF	I	2	1	b	09/09/03	09/09/03	0	0	80.75	85.19	-1.44	7.74	98.25	-1.40	7.80

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APPL Trial 75 (cont.)

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Trial	Sampling Point	Variable	Condition	Sampling Sequence	Replicate	Sampling Date	Test Date	Days Aged	Brightness	L	a	b	L	a	b	
75	BF			2	1	b	09/09/03	09/09/03	0	81.30	95.32	-1.41	7.48	98.36	-1.38	7.53
							average			81.03	95.28	-1.43	7.81	98.31	-1.38	7.47
75	BF			3	1	a	09/09/03	09/09/03	0	82.38	95.48	-1.17	6.79	98.48	-1.13	6.81
75	BF			3	1	b	09/09/03	09/09/03	0	81.61	95.38	-1.33	7.27	98.40	-1.33	7.31
							average			82.09	95.42	-1.28	7.53	98.43	-1.23	7.08
75	BF			4	1	a	09/09/03	09/09/03	0	82.22	95.44	-1.26	6.93	98.45	-1.21	6.95
75	BF			4	1	b	09/09/03	09/09/03	0	82.58	95.57	-1.28	6.80	98.53	-1.21	6.81
							average			82.41	95.51	-1.28	6.87	98.50	-1.21	6.88
75	BF			5	1	a	09/09/03	09/09/03	0	78.78	94.58	-1.43	8.38	95.78	-1.38	8.58
75	BF			5	1	b	09/09/03	09/09/03	0	78.53	94.64	-1.50	8.63	95.82	-1.48	8.77
							average			78.65	94.62	-1.47	8.51	95.80	-1.42	8.64
75	BF			6	1	a	09/09/03	09/09/03	0	79.53	94.82	-1.44	8.08	95.86	-1.40	8.18
75	BF			6	1	b	09/09/03	09/09/03	0	77.84	94.70	-1.61	9.25	95.85	-1.68	9.43
							average			78.69	94.76	-1.53	8.67	95.91	-1.48	8.81
75	BF			7	1	a	09/09/03	09/09/03	0	88.23	95.11	-1.23	7.92	98.19	-1.19	8.00
75	BF			7	1	b	09/09/03	09/09/03	0	88.31	95.21	-1.35	8.01	98.28	-1.31	8.08
							average			88.27	95.16	-1.29	7.97	98.23	-1.26	8.04
75	BF			8	1	a	09/09/03	09/09/03	0	81.40	95.35	-1.30	7.39	98.38	-1.26	7.43
75	BF			8	1	b	09/09/03	09/09/03	0	81.75	95.38	-1.34	7.08	98.38	-1.29	7.12
							average			81.58	95.36	-1.32	7.24	98.38	-1.28	7.28
75	BF			9	1	a	09/09/03	09/09/03	0	80.42	95.08	-1.48	7.78	98.15	-1.41	7.88
75	BF			9	1	b	09/09/03	09/09/03	0	80.17	94.98	-1.57	7.88	98.08	-1.52	7.88
							average			80.30	95.02	-1.52	7.84	98.12	-1.47	7.91
75	BF			1	1	a	09/09/03	09/09/03	0	80.78	95.20	-1.35	7.63	98.28	-1.28	7.68
75	BF			1	1	b	09/09/03	09/09/03	0	79.72	95.12	-1.48	8.37	98.20	-1.44	8.48
							average			80.25	95.16	-1.41	8.00	98.23	-1.38	8.08
75	BF			2	1	a	09/09/03	09/09/03	0	79.87	94.98	-1.50	8.18	98.05	-1.52	8.28
75	BF			2	1	b	09/09/03	09/09/03	0	78.43	94.88	-1.60	8.59	95.77	-1.56	8.72
							average			79.22	94.93	-1.55	8.38	96.88	-1.54	8.48
75	BF			3	1	a	09/09/03	09/09/03	0	78.31	94.90	-1.61	8.12	98.02	-1.58	8.33
75	BF			3	1	b	09/09/03	09/09/03	0	78.63	94.99	-1.57	8.39	98.07	-1.52	8.13
							average			78.47	94.93	-1.59	8.25	98.04	-1.54	8.23
75	BF			4	1	a	09/09/03	09/09/03	0	79.20	94.88	-1.40	8.39	98.01	-1.35	8.50
75	BF			4	1	b	09/09/03	09/09/03	0	79.08	94.82	-1.48	8.48	95.95	-1.43	8.58
							average			79.19	94.85	-1.44	8.44	96.98	-1.38	8.58
75	BF			5	1	a	09/09/03	09/09/03	0	78.78	94.80	-1.85	8.42	98.78	-1.60	8.54
75	BF			5	1	b	09/09/03	09/09/03	0	78.42	94.57	-1.67	8.61	95.78	-1.62	8.74
							average			78.63	94.68	-1.64	8.53	95.78	-1.61	8.64
75	BF			6	1	a	09/09/03	09/09/03	0	78.48	94.84	-1.58	8.32	95.87	-1.54	8.07
75	BF			6	1	b	09/09/03	09/09/03	0	78.62	94.88	-1.57	8.47	95.99	-1.52	8.01
							average			78.55	94.86	-1.58	8.40	95.98	-1.53	8.04
75	BF			7	1	a	09/09/03	09/09/03	0	78.58	94.82	-1.65	8.68	98.04	-1.60	8.60
75	BF			7	1	b	09/09/03	09/09/03	0	78.83	94.88	-1.66	8.78	98.02	-1.64	8.61
							average			78.70	94.81	-1.67	8.73	98.03	-1.62	8.68
75	BF			8	1	a	09/09/03	09/09/03	0	82.28	95.50	-1.21	6.34	98.50	-1.17	6.38
75	BF			8	1	b	09/09/03	09/09/03	0	81.51	95.32	-1.25	7.31	98.37	-1.21	7.34
							average			81.89	95.43	-1.23	7.13	98.44	-1.19	7.18
75	BF			9	1	a	09/09/03	09/09/03	0	81.44	95.25	-1.48	8.07	98.30	-1.44	8.15
75	BF			9	1	b	09/09/03	09/09/03	0	81.22	95.31	-1.40	7.52	98.35	-1.35	7.57
							average			81.33	95.28	-1.44	7.80	98.33	-1.40	7.58

Witnessed &amp; Understood by me

Date

Invented by

Date

Recorded by

Kathy Welch

To Page No. 26



## EXHIBIT C

Project No. 142-4506

Book No. 14615

83

TITLE APPL Trial 82 Determine CS10 Cure Time

From Page No.

APPL Trial T-82

and Temperature to Hit 5k target of 0.05 and Hunter b Target of 5

Project Manager: Angel Skoyanov

Project Number: 00050 W332 615 874 731 142-4506

## Objective:

- Determine the interaction of cure time and temperature leading to a cross-link product with 5k and Hunter b values of 0.15 and 5, or less for both, respectively.

## Safety:

- Normal safety precautions taken with operation of the APPL unit
- Read MSDS for Sorbitol and handle per MSDS recommendations

## Run Conditions:

Pulp Type: CF416  
 Pulp Sheet Linear Feed Rate: 60 ft/min  
 Hammermill Nozzle Gap: 0.095 inches  
 Hammermill Roller Tip Speed: 16,493 ft/min  
 Impregnation Solution Concentration: CS10 Control: 11.61% solids  
 Sorbitol: 11.61% solids  
 Adjust to 2.5 - 2.8 for the Control solution  
 Moisture and Brightness for the Sorbitol solution: 61%  
 Target Hammermill Feed Consistency: CS10 Control - 7.6% Citric Acid, 0.683% SHP & Caustic, 0.181%  
 Target Chemical on ODCP Pulp: Sorbitol - 6.0% Citric Acid, 1.5% Sorbitol & 0.75% SHP  
 (all as 100% Purity)  
 Impregnation Solution Rotameter Setting: See Run Matrix  
 Nominal Cure Temperature: 360 °F  
 Nominal Cure Time: See Run Matrix  
 Target Product Moisture: 6%  
 Remoisturization Solution: See Run Matrix  
 Remoisturization Rotameter Setting: 60% of scale (20 psi water @ 28 psi air)

Run ID	Impregnation		Cure Conditions	Post-Treatment Targets		Post-Treatment Recipes Solution Recipes (per 200 lbs. of Processed Water)	
	Impregnation Solution	Rotameter Setting % of scale		Caustic (WADMT)	H <sub>2</sub> O <sub>2</sub> (WADMT)	lbs. NaOH	lbs. H <sub>2</sub> O <sub>2</sub>
A	CS10	44.7	5	0.0	0.0	0.0	0.0
B	CS10	44.7	5	2.5	2.5	183.2	308.2
C	CS10	44.7	5	2.5	5.0	188.2	629.1
D	Sorbitol	44.5	7	0.0	0.0	0.0	0.0
E	Sorbitol	44.5	7	2.5	2.5	183.2	308.2
F	Sorbitol	44.5	7	2.5	5.0	188.2	629.1

## Samples:

Pulp Feed Rolls: 1 sample per roll  
 Hammermill Feed: 3 samples per run condition  
 Baker Feed: 3 samples at 2 minute intervals during steady state operation

## Sample Analysis:

Pulp Feed Rolls: Moisture  
 Hammermill Feed: Moisture  
 Baker Feed: Moisture, Brightness, Hunter and CIE Color (L\*, a\*, b\*), 5k and Odor

- Pulp Feed Rolls and Hammermill Feed moisture samples will be placed in 9x12 inch sample bags
- Baker Feed moisture samples will be placed in 9x12 inch bags
- Baker Feed FAO Analysis, Brightness and color samples and 5k samples will be placed in 13"x18" bags. (Send these bags since we will need quite a bit of sample for these analyses)
- Odor samples will be placed in glass bottles. Angel will supply bottles. Take on samples #2 + #4

## Impregnation Chemical Solution:

Chemical Solution Recipe	CS10 Control Solution	Sorbitol Solution
Solution Make-up Contingency Factor	27.4	29.1
Target Solution Component Weight in Pounds		
Citric Acid (as-received), lbs.	25.25	20.14
Sorbitol (as-received), lbs.	0.00	7.19
SHP (as-received), lbs.	2.73	3.80
Caustic (as-received), lbs.	0.60	0.00
Water, lbs.	208.25	208.25
Total, lbs.	238.83	238.61
Volume of Water, gallons	25.0	25.0
Impregnation Solution Specific Gravity	1.05	1.04
Volume of Impregnation Solution, gallons	27.1	27.1

Witnessed &amp; Understood by me:

Date

Xact

pH

2.07

1.13

Recorded by

Xact

## EXHIBIT D

Project No. 142-4506

Book No. 1465

TITLE

ARQZ Trial 82 (cont.)

Rico

Page No. 91

Color Day 0

THAL	Sampling Point	Variable	Sampling Condition	Sequence	Replicates	Sampling Date	Test Date	Days Aged	Replicates	L	a	b	L	a	b
82	BF	A	1	1	a	10/28/03	10/28/03	0	78.43	93.09	-1.51	9.33	95.29	-1.46	9.54
82	BF	A	1	1	b	10/28/03	10/28/03	0	76.28	93.95	-1.48	9.39	95.27	-1.43	9.6
					average				76.34	93.87	-1.48	9.38	95.26	-1.45	9.57
82	BF	A	2	1	a	10/28/03	10/28/03	0	74.86	93.52	-1.44	9.02	94.93	-1.4	10.19
82	BF	A	2	1	b	10/28/03	10/28/03	0	73.51	93.22	-1.59	10.59	94.71	-1.5	10.94
					average				74.29	93.37	-1.59	10.29	94.82	-1.45	10.57
82	BF	A	3	1	a	10/28/03	10/28/03	0	75.52	93.7	-1.43	9.58	95.07	-1.38	9.92
82	BF	A	3	1	b	10/28/03	10/28/03	0	74.81	93.48	-1.59	10.05	94.9	-1.59	10.94
					average				75.17	93.59	-1.51	9.82	94.99	-1.47	10.13
82	BF	A	4	1	a	10/28/03	10/28/03	0	74.81	93.24	-1.2	9.77	94.71	-1.18	9.96
82	BF	A	4	1	b	10/28/03	10/28/03	0	74.24	93.42	-1.42	10.31	94.89	-1.39	10.82
					average				74.43	93.33	-1.31	10.04	94.79	-1.27	10.39
82	BF	A	5	1	a	10/28/03	10/28/03	0	74.56	93.42	-1.3	10.04	94.89	-1.28	10.33
82	BF	A	5	1	b	10/28/03	10/28/03	0	74.33	93.45	-1.36	10.23	94.89	-1.31	10.54
					average				74.44	93.44	-1.33	10.14	94.87	-1.29	10.44
82	BF	B	1	1	a	10/28/03	10/28/03	0	78.15	93.37	-1.94	9.14	95.39	-1.89	9.29
82	BF	B	1	1	b	10/28/03	10/28/03	0	78.87	93.37	-2.02	9.35	95.39	-1.95	9.51
					average				78.51	93.33	-1.98	9.25	95.39	-1.92	9.49
82	BF	B	2	1	a	10/28/03	10/28/03	0	83.02	96.19	-1.81	7.25	97	-1.74	7.3
82	BF	B	2	1	b	10/28/03	10/28/03	0	81.15	95.77	-2	8.01	96.09	-1.93	8.09
					average				82.09	95.93	-1.91	7.63	96.59	-1.89	7.69
82	BF	B	3	1	a	10/28/03	10/28/03	0	81.24	95.84	-1.52	8.2	96.79	-1.85	8.27
82	BF	B	3	1	b	10/28/03	10/28/03	0	81.34	95.84	-1.9	8.2	96.8	-1.84	8.26
					average				81.29	95.87	-1.71	8.29	96.79	-1.85	8.27
82	BF	B	4	1	a	10/28/03	10/28/03	0	81.7	95.82	-1.8	7.82	96.74	-1.74	7.87
82	BF	B	4	1	b	10/28/03	10/28/03	0	80.7	95.67	-1.78	8.25	96.58	-1.71	8.33
					average				81.29	95.72	-1.79	8.04	96.66	-1.73	8.19
82	BF	B	5	1	a	10/28/03	10/28/03	0	80.89	95.64	-1.83	8.39	96.6	-1.87	8.44
82	BF	B	5	1	b	10/28/03	10/28/03	0	80.43	95.67	-1.93	8.56	96.63	-1.87	8.95
					average				80.66	95.66	-1.87	8.48	96.62	-1.87	8.58
82	BF	C	1	1	a	10/28/03	10/28/03	0	83.97	96.16	-1.7	6.58	97.01	-1.63	6.58
82	BF	C	1	1	b	10/28/03	10/28/03	0	82.12	95.57	-1.64	7.12	96.55	-1.78	7.15
					average				83.05	95.82	-1.77	6.86	96.78	-1.71	6.87
82	BF	C	2	1	a	10/28/03	10/28/03	0	83.59	96.37	-1.62	6.57	97.18	-1.79	6.89
82	BF	C	2	1	b	10/28/03	10/28/03	0	82.84	96.21	-1.62	7.61	97.09	-1.86	7.53
					average				83.17	96.29	-1.67	7.19	97.12	-1.81	7.28
82	BF	C	3	1	a	10/28/03	10/28/03	0	82.54	96.09	-1.9	7.62	96.98	-1.83	7.65
82	BF	C	3	1	b	10/28/03	10/28/03	0	81.95	95.62	-1.94	7.67	96.78	-1.87	7.71
					average				82.25	95.86	-1.92	7.65	96.89	-1.85	7.68
82	BF	C	4	1	a	10/28/03	10/28/03	0	82.67	96.01	-2.07	7.43	96.69	-1.95	7.46
82	BF	C	4	1	b	10/28/03	10/28/03	0	82.55	96.04	-1.96	7.63	96.82	-1.88	7.53
					average				82.61	96.03	-1.99	7.48	96.76	-1.92	7.49
82	BF	C	5	1	a	10/28/03	10/28/03	0	82.51	95.82	-1.99	7.58	96.76	-1.89	8.04
82	BF	C	5	1	b	10/28/03	10/28/03	0	82.31	95.82	-1.84	7.53	96.82	-1.78	7.59
					average				82.41	95.87	-1.93	7.79	96.79	-1.81	7.89
82	BF	D	1	1	a	10/28/03	10/28/03	0	81.89	95.66	-1.63	7.81	96.82	-1.57	7.88
82	BF	D	1	1	b	10/28/03	10/28/03	0	81.8	95.66	-1.63	7.51	96.82	-1.58	7.56
					average				81.79	95.66	-1.63	7.66	96.82	-1.58	7.81
82	BF	D	2	1	a	10/28/03	10/28/03	0	82.46	95.78	-1.55	7.2	96.11	-1.5	7.22
82	BF	D	2	1	b	10/28/03	10/28/03	0	82.12	95.56	-1.52	7.09	96.54	-1.49	7.12
					average				82.29	95.67	-1.54	7.15	96.63	-1.49	7.17
82	BF	D	3	1	a	10/28/03	10/28/03	0	83.13	95.91	-1.42	6.86	96.81	-1.36	6.87
82	BF	D	3	1	b	10/28/03	10/28/03	0	82.88	95.82	-1.58	7.2	96.82	-1.52	7.21
					average				83.01	95.82	-1.58	7.03	96.82	-1.44	7.04
82	BF	D	4	1	a	10/28/03	10/28/03	0	82.5	95.84	-1.63	7.27	96.76	-1.56	7.28
82	BF	D	4	1	b	10/28/03	10/28/03	0	82.32	95.71	-1.68	7.2	96.66	-1.62	7.22
					average				82.41	95.78	-1.66	7.24	96.71	-1.59	7.25
82	BF	D	5	1	a	10/28/03	10/28/03	0	84.13	96.05	-1.45	6.32	96.82	-1.38	6.3
82	BF	D	5	1	b	10/28/03	10/28/03	0	84.35	96.05	-1.3	5.95	96.85	-1.25	5.82
					average				84.25	96.05	-1.38	6.14	96.84	-1.32	6.11
82	BF	E	1	1	a	10/28/03	10/28/03	0	86.78	98.33	-1.28	4.64	97.14	-1.15	4.58
82	BF	E	1	1	b	10/28/03	10/28/03	0	87.15	98.46	-1.19	4.58	97.23	-1.14	4.5
					average				86.97	98.4	-1.24	4.61	97.19	-1.15	4.54
82	BF	E	2	1	a	10/28/03	10/28/03	0	85.34	96.86	-1.39	5.31	96.87	-1.33	5.27
82	BF	E	2	1	b	10/28/03	10/28/03	0	85.02	96.89	-1.25	4.74	96.87	-1.2	4.69
					average				85.18	96.88	-1.32	5.03	96.87	-1.27	4.98
82	BF	E	3	1	a	10/28/03	10/28/03	0	86.13	98.46	-1.3	5.22	97.24	-1.25	5.27
82	BF	E	3	1	b	10/28/03	10/28/03	0	85.87	98.32	-1.34	5.32	97.14	-1.28	5.27
					average				86.08	98.39	-1.32	5.22	97.19	-1.27	5.27
82	BF	E	4	1	a	10/28/03	10/28/03	0	86.79	98.58	-1.25	5.03	97.35	-1.23	4.97
82	BF	E	4	1	b	10/28/03	10/28/03	0	86.75	98.63	-1.25	5.11	97.38	-1.2	5.04
					average				86.77	98.61	-1.22	5.07	97.37	-1.22	5.01
82	BF	E	5	1	a	10/28/03	10/28/03	0	85.8	98.25	-1.23	5.23	97.08	-1.19	5.18
82	BF	E	5	1	b	10/28/03	10/28/03	0	85.85	98.3	-1.29	5.32	97.12	-1.24	5.27
					average				85.83	98.28	-1.26	5.28	97.19	-1.22	5.23
82	BF	F	1	1	a	10/28/03	10/28/03	0	86.7	98.3	-1.25	4.77	97.12	-1.2	4.64
82	BF	F	1	1	b	10/28/03	10/28/03	0	86.62	98.27	-1.31	4.75	97.1	-1.25	4.65
					average				86.66	98.29	-1.28	4.71	97.11	-1.23	4.64
82	BF	F	2	1	a	10/28/03	10/28/03	0	86.25	98.33	-1.37	5.07	97.15	-1.25	5.02
82	BF	F	2	1	b	10/28/03	10/28/03	0	86.57	98.3	-1.23	4.79	97.12	-1.18	4.74
					average				86.41	98.32	-1.27	4.93	97.14	-1.22	4.88
82	BF	F	3	1	a	10/28/03	10/28/03	0	86.16	98.32	-1.32	5.13	97.14	-1.27	5.08
82	BF	F	3	1	b	10/28/03	10/28/03	0	85.89	98.17	-1.3	5.09	97.02	-1.25	5.04
					average				86.03	98.25	-1.31	5.11	97.08	-1.26	5.06
82	BF	F	4	1	a	10/28/03	10/28/03	0	86.45	98.33	-1.34	4.94	97.15	-1.29	4.86
82	BF	F	4	1	b	10/28/03	10/28/03	0	86.37	98.3	-1.4	5.28	97.17	-1.34	5.23
					average				86.41	98.33	-1.37	5.11	97.16	-1.32	5.06
82	BF	F	5	1	a	10/28/03	10/28/03	0	86.34	98.46	-1.35	5.21	97.24	-1.29	5.15
82	BF	F	5	1	b	10/28/03	10/28/03	0	85.87	98.38	-1.27	5.33	97.18	-1.37	5.29
					average				86.11	98.42	-1.31	5.27	97.21	-1.33	5.22

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